CLINICAL BIOMECHANICS

INDEX: VOLUME 15 2000

Volume 15 Number 1 January 2000

PAPERS

1 **A method of measuring three-dimensional scapular attitudes using the Optotrak probing system**
L.J. Hébert, H. Moffet, B.J. McFadyen, G. St. Vincent

9 **Upper limb tension tests as tools in the diagnosis of nerve and plexus lesions**
G.J. Kleinrensink, R. Stoeckart, P.G.H. Mulder, G.v.d. Hoek, Th. Broek, A. Vleeming, C.J. Snijders

15 **Shock accelerations and attenuation in downhill and level running**
J. Mizrahi, O. Verbitsky, E. Isakov

21 **Reliability of peroneal reaction time measurements**
S. Benesch, W. Pütz, D. Rosenbaum, H.-P. Becker

29 **An in vivo determination of patellofemoral contact positions**
R.D. Komistek, D.A. Dennis, J.A. Mabe, S.A. Walker

37 **Lower limb muscle dysfunction may contribute to foot ulceration in diabetic patients**
R.J. Abboud, D.I. Rowley, R.W. Newton

46 **A study of in-shoe plantar shear in normals**
R. Hosein, M. Lord

54 **Effects of foot orthoses on skeletal motion during running**
A. Stacoff, C. Reinschmidt, B.M. Nigg, A.J. van den Bogert, A. Lundberg, J. Denoth, E. Stüssi

65 **Letters to the Editor**

Volume 15 Number 2 February 2000

PAPERS

73 **Superiority of incremental trauma approach in experimental burst fracture studies**
M.M. Panjabi, H. Hoffman, Y. Kato, J. Cholewicki

79 **Brief Report – Belt effects on lumbar sagittal angles**
Y.-H. Lee, C.-Y. Chen

83 **The long-term effects of rally driving on spinal pathology**
T. Videman, R. Simonen, J.-P. Usenius, K. Österman, M.C. Battié

87 **Theory of small vertebral motions: an analytical model compared to data**
A.B. Solinger

95 **EMG and strength correlates of selected shoulder muscles during rotations of the glenohumeral joint**
G. David, M.E. Magarey, M.A. Jones, Z. Dvir, K.S. Türker, M. Sharpe

103 **Analysis of helical axes, pivot and envelope in active wrist circumduction**
P. Salvia, L. Woestyn, J.H. David, V. Feipel, S. Van, S. Jan, P. Klein, M. Rooze

112 **A mathematical model of forces in the knee under isometric quadriceps contractions**
R.A. Huss, H. Holstein, J.J. O'Connor

123 **Biomechanical analysis of sit-to-stand transfer in healthy and paraplegic subjects**
F. Bahrami, R. Riener, P. Jabedar-Maralani, G. Schmidt

134 **Intrasubject repeatability of gait analysis data in normal and spastic children**
G. Steinwender, V. Saraph, S. Scheiber, E.B. Zwick, C. Uitz, K. Hackl

140 **Fracture stiffness measurement using the orthometer: reproducibility and sources of error**
S.J. Eastaugh-Waring, J.R.W. Hardy, J.L. Cunningham

143 **Brief Report – Potential of the back propagation neural network in the assessment of gait patterns in ankle arthrodesis**
W.-L. Wu, F.-C. Su

Volume 15 Number 3 March 2000

PAPERS

147 **CLINICAL BIOMECHANICS AWARD 1999 – Intra-articular knee joint effusion induces quadriceps avoidance gait patterns**
M.R. Torry, M.J. Decker, R.W. Viola, D.D. O'Connor, J.R. Steadman

160 **Review Paper – Biomechanical considerations for rehabilitation of the knee**
G. McGinty, J.J. Irrgang, D. Pezzullo

167 **Biexponential recovery model of lumbar viscoelastic laxity and reflexive muscular activity after prolonged cyclic loading**
M. Solomonow, B. He Zhou, R.V. Baratta, Y. Lu, M. Zhu, M. Harris

176 **Cruciate ligament forces in the human knee during rehabilitation exercises**
D.E. Toutoungi, T.W. Lu, A. Leardini, F. Catani, J.J. O'Connor

188 **Interference screw fixation of doubled flexor tendon graft in anterior cruciate ligament reconstruction – biomechanical evaluation with cyclic elongation**
H. Nakano, K. Yasuda, H. Tohyama, M. Yamanaka, T. Wada, K. Kaneda

196 **A study of biomechanical parameters in gait analysis and sensitive cronaxie of diabetic neuropathic patients**
I.C.N. Sacco, A.C. Amadio

203 **Contribution of the extrinsic and intrinsic hand muscles to the moments in finger joints**
Z.M. Li, V.M. Zatsiorsky, M.L. Latash

212 **In vivo kinematic study of normal wrist motion: an ultrafast computed tomographic study**
J.-S. Sun, T.T.-F. Shih, C.-M. Ko, C.-H. Chang, Y.-S. Hang, S.-M. Hou

217 **Brief Report – Modeling the body/chair interaction – an integrative experimental–numerical approach**
T. Brosh, M. Arcan

Volume 15 Number 4 May 2000

PAPERS

221 **Factor structure of trunk performance data for healthy subjects**
Y.-H. Lee, C.-L. Kuo

228 **Ultrasonic quantification of osseous displacements resulting from skin surface indentation loading of bovine para-spinal tissue**
G.N. Kawchuk, O.R. Fauvel, J. Dmowski

234 **Description of the relation between the forces acting in the lumbar spine and whole-body vibrations by means of transfer functions**
M. Fritz

241 **The bursal and articular sides of the supraspinatus tendon have a different compressive stiffness**
S.-B. Lee, T. Nakajima, Z.-P. Luo, M.E. Zobitz, Y.-W. Chang, K.-N. An

248 **Three-dimensional measurement of cemented femoral stem stability: an in vitro cadaver study**
A.D. Speirs, M.A. Slomczykowski, T.E. Orr, K. Siebenrock, L.-P. Nolte

256 **Determination of hydrodynamic drag forces and drag coefficients on human leg/foot model during knee exercise**
T. Pöyhönen, K.L. Keskinen, A. Hautala, E. Mälkiä

261 **Passive stiffness characteristics of ankle plantar flexors in hemiplegia**
J. Harlaar, J.G. Becher, C.J. Snijders, G.J. Lankhorst

271 **Foot progression angle and ankle joint complex in preschool children**
C.-S. Ho, C.-J. Lin, Y.-L. Chou, F.-C. Su, S.-C. Lin

278 **A study of in-shoe plantar shear in patients with diabetic neuropathy**
M. Lord, R. Hosein

284 **Mechanical properties of collagen fascicles from in situ frozen and stress-shielded rabbit patellar tendons**
E. Yamamoto, S. Tokura, N. Yamamoto, K. Hayashi

292 **Brief Report – The effect of lumbar back support tension on trunk muscle activity**
M.J. Jorgensen, W.S. Marras

295 **Brief Report – Spinal load changes during rotatory dynamic sitting**
M. Lengsfeld, D.L. van Deursen, A. Rohlmann, L.L.J.M. van Deursen, P. Griss

298 **Brief Report – Development of a clinical instrument to measure heel pad indentation**
K. Rome, P. Webb

Volume 15 Number 5 June 2000

PAPERS

301 **Flexor muscle incursion into the carpal tunnel: a mechanism for increased carpal tunnel pressure?**
P.J. Keir, J.M. Bach

306 **The effect of negative intraarticular pressure and rotator cuff force on Glenohumeral translation during simulated active elevation**
C. Hurschler, N. Wülker, M. Mendila

315 **Predicting mechanical load of the glenohumeral joint, using net joint moments**
M. Praagman, M. Stokdijk, H.E.J. Veeger, B. Visser

322 **The relevance of the moment arm of shoulder muscles with respect to axial rotation of the glenohumeral joint in four positions**
D.K. Kuechle, S.R. Newman, E. Itoi, G.L. Niebur, B.F. Morrey, K.-N. An

330 **Passive moment about the hip in straight leg raising**
R.Y.W. Lee, J. Munn

335 **The influence of weakness in the vastus medialis oblique muscle on the patellofemoral joint: an in vitro biomechanical study**
N. Sakai, Z.-P. Luo, J.A. Rand, K.-N. An

340 **Kinematic and kinetic analysis of the walking pattern in hemiplegic patients with foot-drop using a peroneal nerve stimulator**
M. Voigt, T. Sinkjaer

352 **Biomechanical adaptations of transtibial amputee sprinting in athletes using dedicated prostheses**
J.G. Buckley

359 **Plantar and dorsal foot loading measurements in patients after rotationplasty**
A. Hillmann, D. Rosenbaum, W. Winkelmann

365 **Correlations between force plate measures for assessment of balance**
A. Karlsson, G. Frykberg

370 **Effects of growth on the response of the rabbit patellar tendon to stress shielding: a biomechanical study**
H. Fujie, N. Yamamoto, T. Murakami, K. Hayashi

379 **Alterations of biochemical and two-dimensional biomechanical properties of human skin in diabetes mellitus as compared to effects of in vitro non-enzymatic glycation**
R. Reihsner, M. Melling, W. Pfeiler, E.-J. Menzel

387 **Book Review – Research into Spinal Deformities; I.A.F. Stokes (Ed.); IOS Press, 1999**
M.-S. Moon

Volume 15 Number 6 July 2000

389 **Review Paper – The relationship between psychosocial work characteristics and low back pain: underlying methodological issues**
K.G. Davis, C.A. Heaney

PAPERS

407 **The effect of load on the coordination of the trunk for subjects with and without chronic low back pain during flexion–extension and lateral bending tasks**
C. Larivière, D. Gagnon, P. Loisel

417 **Magnetic resonance-based vertebral morphometry of the thoracic spine: age, gender and level-specific influences**
S. Goh, R.I. Price, S. Song, S. Davis, K.P. Singer

426 **Cervical muscle response during whiplash: evidence of a lengthening muscle contraction**
J.R. Brault, G.P. Siegmund, J.B. Wheeler

436 **Cervical coupling during lateral head translations creates an S-configuration**
D.E. Harrison, D.D. Harrison, R. Cailliet, T.J. Janik, S.J. Troyanovich

441 **Arm motion and load analysis of sit-to-stand, stand-to-sit, cane walking and lifting**
C. Anglin, U.P. Wyss

449 **The effects of the lower extremity joint motions on the total body motion in sit-to-stand movement**
B. Yu, N. Holly-Crichlow, P. Brichta, G.R. Reeves, C.M. Zablotny, D.A. Nawoczenski

456 **Mechanical properties of the posterior rotator cuff**
A. Halder, M.E. Zobitz, F. Schultz, K.N. An

463 **The acetabular labrum seal: a poroelastic finite element model**
S.J. Ferguson, J.T. Bryant, R. Ganz, K. Ito

Volume 15 Number 7 August 2000

PAPERS

469 **Lifting an unexpectedly heavy object: the effects on low-back loading and balance loss**
J.C.E. van der Burg, J.H. van Dieën, H.M. Toussaint

478 **Strategies of load tilts and shoulders positioning in asymmetrical lifting. A concomitant evaluation of the reference systems of axes**
M. Gagnon, A. Larrivé, P. Desjardins

489 **Finger motion, wrist motion and tendon travel as a function of keyboard angles**
J.E. Nelson, D.E. Treaster, W.S. Marras

499 **An assessment of alternate keyboards using finger motion, wrist motion and tendon travel**
D.E. Treaster, W.S. Marras

504 **Three-dimensional gait analysis in women with a total hip arthroplasty**
M. Perron, F. Malouin, H. Moffet, B.J. McFadyen

516 **Impact load transmission of the knee joint-influence of leg alignment and the role of meniscus and articular cartilage**
Y. Fukuda, S. Takai, N. Yoshino, K. Murase, S. Tsutsumi, K. Ikeuchi, Y. Hirasawa

522 **The relationship between ankle plantar flexor muscle moments and knee compressive forces in subjects with and without pain**
M.J. Robon, K.L. Perell, M. Fang, E. Guererro

528 **Knee joint loading in forward versus backward pedaling: implications for rehabilitation strategies**
R.R. Neptune, S.A. Kautz

536 **The effects of knee and ankle flexion on ground clearance in paraplegic gait**
P.J. Greene, M.H. Granat

541 **Amplitude and frequency analysis of force plate data in sitting children with and without MMC**
A. Karlsson, S. Norrlin, H.C. Silander, M. Dahl, H. Lanshamma

546 **Brief Report – Stadiometry: on measurement technique to reduce variability in spine shrinkage measurement**
J. Peter Stothart, S.M. McGill

Volume 15 Number 8 October 2000

PAPERS

549 **Determination of the in vivo loading of the lumbar spine with a new approach directly at the workplace – first results for nurses**
M.M. Morlock, V. Bonin, G. Deuretzbacher, G. Müller, M. Honl and E. Schneider

559 **Segment inertial properties of Chinese adults determined from magnetic resonance imaging**
C.-K. Cheng, H.-H. Chen, C.-S. Chen, C.-L. Lee and C.-Y. Chen

567 **Evaluation of low back muscle surface EMG signals using wavelets**
M.H. Pope, A. Aleksiev, N.D. Panagiotacopulos, J.S. Lee, D.G. Wilder, K. Friesen, W. Stielau and V.K. Goel

574 **The effect of eccentric exercise on intrinsic and reflex stiffness in the human hand**
A.B. Leger and T.E. Milner

583 **The effect of visual targeting on ground reaction force and temporospatial parameters of gait**
S.C. Wearing, S.R. Urry and J.E. Smeathers

592 **Gait and electromyographic analysis of patients recovering after limb-saving surgery**
E. De Visser, Th. Mulder, H.W.B. Schreuder, R.P.H. Veth and J. Duysens

600 **Investigation into the relationship between the passive flexibility and active stiffness of the ankle plantar-flexor muscles**
D.G. Hunter and J. Spriggs

607 **Analysis of ground reaction forces by means of wavelet transform**
F. Verdini, T. Leo, S. Fioretti, M.G. Benedetti, F. Catani and S. Giannini

611 **The influence of orthotic devices and vastus medialis strength and timing on patellofemoral loads during running**
R.R. Neptune, I.C. Wright and A.J. van den Bogert

619 **The manual stress test may not be sufficient to differentiate ankle ligament injuries**
T. Fujii, Z.-P. Luo, H.B. Kitaoka and K.-N. An

624 **Early morphometric and anisotropic change in periarticular cancellous bone in a model of experimental knee osteoarthritis quantified using microcomputed tomography**
S.K. Boyd, R. Müller, J.R. Matyas, G.R. Wohl and R.F. Zernicke

Volume 15 Number 9 November 2000

633 **Review Paper – Biomechanics of the cervical spine. I: Normal kinematics**
N. Bogduk and S. Mercer

PAPERS

649 **Qualitative analysis of neck kinematics during low-speed rear-end impact**
F. Luan, K.H. Yang, B. Deng, P.C. Begeman, S. Tashman and A.I. King

658 **Reproducibility and instrument validity of a new ultrasonography-based system for measuring cervical spine kinematics**
Z. Dvir and T. Prushansky

665 **Optimal sagittal motion axis for trunk extension and flexion tests in chronic low back trouble**
P. Rantanen and F. Nykvist

672 **Regressionally determined vertebral inclination angles of the lumbar spine in static lifts**
Y.-H. Lee and Y.-L. Chen

678 **The reproducibility of multi-joint isokinetic and isometric assessments in a healthy and patient population**
M.J. Callaghan, C.J. McCarthy, A. Al-Omar and J.A. Oldham

684 **Effects of changes in cadence, prosthetic componentry, and time on interface pressures and shear stresses of three trans-tibial amputees**
J.E. Sanders, S.G. Zachariah, A.B. Baker, J.M. Greve and C. Clinton

695 **Removal of the lateral or medial third of patellar tendon alters the patellofemoral contact pressure and area: an in vitro experimental study in dogs**
K.M. Chan, L. Qin, C.K. Li, L.K. Hung, C.Y. Tang and C. Rolf

Volume 15 Number 10 December 2000

703 **Review Paper – The effects of motion on trunk biomechanics**
K.G. Davis and W.S. Marras

PAPERS

718 **Load-bearing and stress analysis of the human spine under a novel wrapping compression loading**
A. Shirazi-Adl and M. Parnianpour

726 **Practice-related changes in lumbar loading during rapid voluntary pulls made while standing**
A.H. Chang, W.A. Lee and J.L. Patton

735 **Glenohumeral kinematics and capsulo-ligamentous strain resulting from laxity exams**
S.L. Brenneke, J. Reid, R.P. Ching and D.L. Wheeler

743 **Joint angle-dependence of elbow flexor activation levels during isometric and isokinetic maximum voluntary contractions**
J.E. Kasprisin and M.D. Grabiner

750 **Initial stability of fully and partially cemented femoral stems**
L. Claes, S. Fiedler, M. Ohnmacht and G.N. Duda

756 **Biomechanical study on the effect of twisted human patellar tendon**
A. Thambyah, P. Thiagarajan and J.C.H. Goh

761 **Doppler imaging of vibrations as a tool for quantifying first tarsometatarsal joint stiffness**
F.W.M. Faber, G.J. Kleinrensink, H.M. Buyruk, P.G.H. Mulder, H.J. Stam, C.J. Snijders and R. Stoeckart

766 **A computer analysis of reflex eyelid motion in normal subjects and in facial neuropathy**
N.N. Somia, G.S. Rash, E.E. Epstein, M. Wachowiak, M.J. Sundine, R.W. Stremel, J.H. Barker and D. Gossman

772 **Measuring spinal motion in rowers: the use of an electromagnetic device**
A.M.J. Bull and A.H. McGregor

777 **Changes in lumbar lordosis modify the role of the extensor muscles**
S.M. McGill, R.L. Hughson and K. Parks

781 **Brief Report – A Comparison of vertical force and temporal parameters produced by an in-shoe pressure measuring system and a force platform**
S. Barnett, J.L. Cunningham and S. West

786 **Brief Report – Technique to measure lumbar curvature in the ergonomic evaluation of chairs: description and validation**
M. Vergara and Á. Page